

Appendix I: Biological Opinion

US Fish and Wildlife Service



United States Department of the Interior

FISH AND WILDLIFE SERVICE

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JAN 18 2006

In Reply Refer To: 1-12-2005-F-24R

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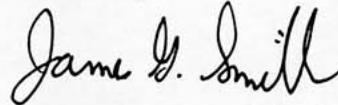
Subject: Formal Endangered Species Consultation for the Pilgrim Timber Sale,
Shasta-McCloud Management Unit, Shasta-Trinity National Forest

Dear Mr. Wolcott:

This correspondence is in reply to your letter, dated November 8, 2005, and received by this office on November 9, 2005, describing corrections and clarifications to the Pilgrim Timber Sale (proposed action) Biological Assessment, Shasta-McCloud Management Unit, Shasta-Trinity National Forest. The attached document transmits the U.S. Fish and Wildlife Service's Biological Opinion based on our review of the proposed action and its effects on designated critical habitat for the federally threatened northern spotted owl (*Strix occidentalis caurina*) in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 et seq.). The biological opinion outlines effects of the proposed action, including our determination that *the proposed action is not likely to destroy or adversely modify designated critical habitat for the northern spotted owl*. Additionally, we concur with your determination that the proposed action *may affect but is not likely to adversely affect the northern spotted owl*. We have based this determination on the following: (1) no northern spotted owls or activity centers are known to occur within 1.3 miles of the proposed action based on recent surveys; and (2) foraging activity by potential dispersing northern spotted owls is highly unlikely and discountable due to habitat fragmentation, poor habitat conditions (i.e., extensive amount of diseased trees), lack of water supply, and associated low prey density.

If you have any questions regarding this letter or the attached biological opinion which addresses effects of the proposed action on northern spotted owl critical habitat, please contact Jennifer Ballard or Heidi E.D. Crowell of my staff at 530-527-3043.

Sincerely,

A handwritten signature in black ink that reads "James G. Smith". The signature is written in a cursive style with a large, prominent "J" and "S".

James G. Smith
Project Leader

cc: Francis Mangels, District Wildlife Biologist
Shasta-McCloud Management Unit, Shasta-Trinity National Forest
2019 Forest Road, McCloud, CA 96057

Formal Consultation for the
Pilgrim Timber Sale
(1-12-2005-F-24R)

Shasta-McCloud Management Unit
Shasta-Trinity National Forest

BIOLOGICAL OPINION

Introduction

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion (BO) based on our review of the proposed action and its effects on designated critical habitat for the northern spotted owl (*Strix occidentalis caurina*) in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

This BO is based on information provided by the following: the Biological Assessment for the Pilgrim Vegetation Management Project (BA) (USDA Forest Service 2005); and telephone and electronic mail correspondence. Additionally, this BO references information contained in the Record of Decision for Amendments to Forest Service and Bureau of Land Management (BLM) Planning documents within the Range of the Northern Spotted Owl (USDA Forest Service and USDI Bureau of Land Management 1994a), A Range-wide Baseline Summary and Evaluation of Data Collected Through Section 7 Consultation for the Northern Spotted Owl and its Critical Habitat: 1994-2001 (USDI Fish and Wildlife Service 2001), and updates to this report conducted as needed by the Service.

Consultation History

Northwest Forest Plan

On October 8, 1993, the Secretaries of Agriculture and Interior (Secretaries) initiated formal consultation on the preferred alternative (Alternative 9) in the Final Supplemental Environmental Impact Statement on Management for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (FSEIS) (USDA Forest Service and USDI Bureau of Land Management 1994b). On February 10, 1994, the Service issued a BO determining that implementation of the preferred alternative was not likely to jeopardize the continued existence or adversely modify critical habitat of any listed species. The Service rendered the BO on Alternative 9 based on the assumption that all proposed projects would be consistent with the Record of Decision (ROD), and noted that all proposed projects conducted pursuant to the FSEIS, that may affect listed species, would be submitted to the Service for section 7 consultation (USDI Fish and Wildlife Service 1994). On April 14, 1994, the Secretaries signed the ROD adopting an amended Alternative 9. The Service subsequently determined that because changes in the amended version of Alternative 9 - herein referred to as the Northwest Forest Plan (NWFP) - were relatively minor, re-initiation of consultation on the ROD was not required. However, the NWFP is programmatic in nature and did not address site-specific activities and their effects on listed species or their designated critical habitats. These specific assessments were deferred to future consultations in which more specific information on baseline conditions and proposed project actions could be incorporated.

Shasta-Trinity National Forest (STNF) Land and Resource Management Plan

The Service followed up the NWFP range-wide consultation with a consultation addressing the Shasta-Trinity National Forest Land and Resource Management Plan (LRMP) (USDA Forest Service 1995). The LRMP was prepared to guide natural resource management activities and establish management standards and guidelines for the STNF. On April 26, 1995, the Service issued a BO determining that implementation of the LRMP was not likely to jeopardize the continued existence of the northern spotted owl (USDI Fish and Wildlife Service 1995).

Level-One Coordination on the Pilgrim Timber Sale

Informal consultation with the Service was initiated on April 26, 2004. Project activities and effects were discussed with Ms. Heidi Crowell (Red Bluff Fish and Wildlife Office (RBFWO) Biologist) during an ID Team Meeting and project site visit with Mr. Francis Mangels (Shasta-McCloud Management Unit Wildlife Biologist). Verbal and electronic mail correspondence regarding project development and effects of the proposed action continued through September, 2004. Ms. Crowell attended an additional ID Team meeting on September 22, 2004, followed by Ms. Danielle Chi (RBFWO Biologist) attending a meeting and project site visit on November 29 and December 6, 2004. Further discussions occurred between Ms. Chi and Mr. Mangels through March, 2005, regarding potential effects determinations with regard to designated critical habitat. Comments on the draft BA were provided by Ms. Chi on February 25, 2005, and by Ms. Crowell on June 30, 2005. Kelly Wolcott (Forest Biologist) informed Jennifer Ballard (RBFWO Biologist) of several errors in the Biological Assessment on October 21, 2005, and a corrected version was provided November 22; a final version was provided by electronic mail on December 8, 2005. A subsequent clarification occurred by telephone.

The STNF is using a species list obtained from the Sacramento Fish and Wildlife Service website (http://sacramento.fws.gov/es/spp_list.htm) on June 20, 2005 (see Appendix A of the BA).

A complete administrative record of this consultation is available and on file at the Service's Red Bluff Fish and Wildlife Office in Red Bluff, California.

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1 Description of the Proposed Action

1.1 Project Description

The Pilgrim Timber Sale is located within the McCloud Flats area north of McCloud River Canyon, south of Fons/Trout Creek Butte, west of Black Fox Mountain/Kinyon Ridge, and east of Shasta Forest Subdivisions (Figure 1). This area occurs within the Ash and Upper McCloud 5th Field Watersheds and the California Klamath physiographic province – Eastern Klamath ecozone. The analysis area includes a 1.5 mile buffer around the project units, totaling 7,700 acres of land. The project area encompasses 3,780 acres of both timber land and meadow in the McCloud Flats area. Timber harvest would occur on approximately 3,485 acres, with the remaining 295 acres for meadow restoration and aspen release. Timber harvest outputs are expected to total a maximum of 30 million board feet (MMBF) of sawlog products and approximately 3,000 tons of biomass products. The STNF is proposing to conduct the Pilgrim Timber Sale for purposes of directly or indirectly helping to maintain a productive forest through treating areas that are facing high levels of mortality due to bark beetle infestation and root disease. Proposed treatments include the following:

1.1.1 Ponderosa Pine Dead Stand Harvest and Replant (a.k.a. green tree retention (GTR))

Approximately 375 acres of predominantly 95- to 110-year-old ponderosa pine stands would be harvested and re-planted due to problems associated with root disease and bark beetle infestation. Diseased trees with chlorotic foliage, poor crown condition, poor needle retention and/or evidence of successful insect attacks would be removed. Approximately 40% of the trees in these stands are already dead and have already lost their foliage. These trees are scattered throughout the stand and in small pockets. Where available, 6 to 10 healthy, full-crowned trees per acre would be retained. All tree species (i.e., white fir, incense-cedar, sugar pine, Douglas-fir, and black oak) other than ponderosa pine would remain in place. Retention areas would include the largest, oldest, and healthiest live trees (if available), decadent trees, and hard snags. Residual slash would be tractor piled and burned. Areas would be re-planted with mixed species in shaded locations and ponderosa pine in open locations.

1.1.2 Knobcone Dead Stand Harvest and Replant

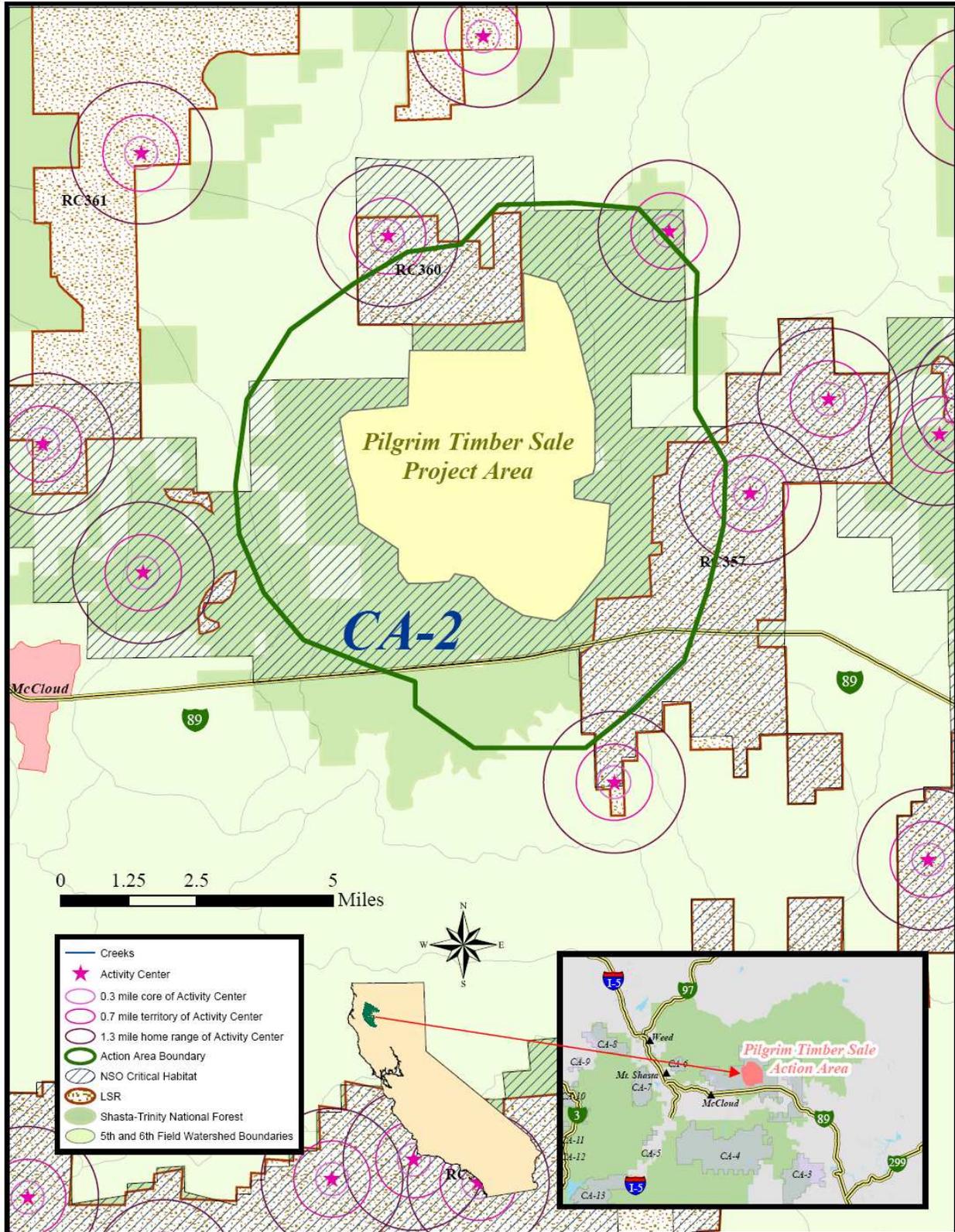
Approximately 10 acres of dead and dying knobcone pine would be harvested and re-planted. Residual slash would be tractor piled and burned, and areas would be replanted with ponderosa pine.

1.1.3 Thinning¹ - Standard Pine Prescription to 40 Percent Canopy

Approximately 1,200 acres of 75- to 95-year-old ponderosa pine stands that are dead or dying from insects, root disease, or drought would be thinned to 40 percent canopy. In remaining overstocked areas, STNF proposes to thin to a density of approximately 120 to 150 square feet of basal area. Additionally, areas larger than 1-acre in size would be planted if post-harvest evaluation determines that regeneration is needed due to past and present tree mortality.

¹ All thinning prescriptions (i.e., sections 1.1.3 – 1.1.6) include the removal of trees in the lower crown classes in addition to diseased or dying trees. The Forest Service's objective is to concentrate growth on the residual trees in the stands that would have the best ability to respond to a decrease in competition. These types of trees generally have larger crowns with a greater capacity to photosynthesize.

Figure 1. Project area for the Pilgrim Timber Sale Project, Shasta-McCloud Management Unit, Shasta-Trinity National Forest.



1.1.4 Thinning - Disease Control Prescription to 30 - 40 Percent Canopy

Approximately 1,075 acres of 75- to 110-year-old ponderosa pine stands are currently experiencing greater mortality than those stands to be treated with the standard thinning. These stands prescribed for disease control would be thinned to 30 to 40 percent canopy closure. Trees that are dead or dying from insects, root disease, or drought would be removed, followed by thinning any remaining overstocked areas to approximately 100 to 120 square feet of basal area. Areas larger than 1 acre in size would be planted if post-harvest evaluation determines that regeneration is needed due to past and present tree mortality.

1.1.5 Thinning - Old Tree Release to 40 Percent Canopy

Approximately 40 acres of two-storied mature stands would be thinned to 40 percent canopy to reduce understory ladder fuels and maintain older trees, especially pines.

1.1.6 Thinning - Older Plantation Biomass

Approximately 785 acres of 25- to 45-year-old ponderosa pine stands would be thinned from below to a spacing of approximately 20 feet. Approximately 90 percent of these stands are older plantations. After thinning is conducted, the fuel product would be converted primarily to wood chips.

1.1.7 Aspen Release

Approximately 20 acres of lands would be treated to release aspen trees from conifer competition. Therefore, all conifers within 100 to 150 feet of aspen would be removed.

1.1.8 Dry Meadow Restoration

Approximately 275 acres of historically dry meadow area would be treated to remove small diameter (i.e., less than 14 inches DBH) conifers and thin remaining overstory conifers to 80 square feet of basal area per acre. This treatment would restore the area to its original, open meadow condition.

1.1.9 Manage Forest Fuels

All stands that would receive thinning treatments (i.e., sections 1.1.3 – 1.1.6, totaling 2,100 acres) would be examined after harvest and (if necessary) be underburned and/or tractor piled to reduce excessive accumulations of downed wood and deep needle slash. The Forest Service estimates underburning would occur on approximately 200 acres (i.e., 9.5 percent of thinned areas) and tractor piling would occur on 700 acres (i.e., 33 percent of thinned areas).

1.1.10 Road Management

Approximately 9 miles of existing roads would be permanently closed following harvest and fuel treatment activities. Additionally, approximately 2.6 miles of existing roads would be decommissioned and removed from the forest road system. Approximately 0.3 mile of new temporary road would need to be constructed in unit #9 prior to harvest and fuel treatment activities to reduce skidding distance.

1.1.11 Proposed Conservation Measures

Proposed conservation measures include the following:

- Borax would be applied on stumps following tree removal to prevent the spread of *annosus* root disease. The use of all other herbicides or pesticides would be prohibited.
- All snags² larger than 15 inches DBH which are not hazardous to operations would be left in place at an average of 2 per acre.
- Deadwood requirements as outlined in the Forest's LRMP would be met (i.e., at least 6 logs and 1.5 standing snags per acre). In areas where this cannot be met with existing conditions, one 10-by-10 foot minimum slash pile or equivalent 5 to 15 tons maximum large deadwood per acre would be left unburned where tractor piling is prescribed. Cull logs greater than 20-inches at the large end would not be included in the timber sale. However, slash piles within 200 feet of a system road may be burned to reduce hazards and improve visual quality.
- Hardwoods would be maintained and managed for sustainability, by removing all competing conifers within 100 to 150 feet. If needed, aspen stands would be protected by installing fencing following harvest to prevent cattle grazing and enhance tree growth. Oaks, uncommon in the project area, would be protected and released.
- A Forest Service administrator would conduct weekly inspections of harvest operations to ensure compliance, and the range officer/biologist would monitor aspen/oak/prescribed burn areas and require installation of additional fencing if overgrazing occurs.

1.2 Definition of the Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action, including interrelated and interdependent actions, and not merely the immediate area involved in the action (50 CFR §402.02). The action area for the Pilgrim Timber Sale includes all lands within a 1.5-mile radius of the project site (i.e., 7,700 total acres), while the project area totals 3,780 acres of Forest Service property. The action area lies entirely within Matrix in Management Area 2 and northern spotted owl critical habitat unit (CHU) CA-2. Late-successional reserve RC-260 (Elk Flat) is adjacent to the northwest edge of the project area.

2 Status of the Species/Northern Spotted Owl Critical Habitat

This Biological Opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Rather, we are relying on the statute and the August 6, 2004, Ninth circuit court of Appeals decision in *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service* (No. 03-35279) to complete the following analysis with respect to critical habitat.

2.1 Legal Status

On January 15, 1992, the Service designated critical habitat for the northern spotted owl within 190 CHUs which encompass nearly 6.9 million acres across Washington (2.2 million acres), Oregon (3.3 million acres), and California (1.4 million acres) (USDI Fish and Wildlife Service 1992). The northern spotted owl critical habitat final rule states: "Section 7 analysis of activities affecting owl critical habitat should consider provinces, subprovinces, and individual CHUs, as

² The Forest Service expects recruitment of additional snags would occur due to continual disease problems within the stands.

well as the entire range of the subspecies (page 1823).” The rule goes on to assert the basis for an adverse modification opinion should be evaluated at the provincial scale (page 1823).

2.2 Description of Critical Habitat

2.2.1 *Primary Constituent Elements*

Primary constituent elements (PCEs) are the physical and biological features of critical habitat essential to a species' conservation. The PCEs identified in the northern spotted owl critical habitat final rule include those physical and biological features that support nesting, roosting, foraging, and dispersal (57 *Federal Register* 1796). Features that support nesting and roosting habitat typically include a moderate to high canopy (60 to 90 percent); a multi-layered, multi-species canopy with large [> 30 inches diameter at breast height] overstory trees; a high incidence of large trees with various deformities (e.g., large cavities, broken tops, mistletoe infections, and other evidence of decadence); large snags; large accumulations of fallen trees and other woody debris on the ground; and sufficient open space below the canopy for owls to fly (Thomas et al. 1990). Foraging habitat generally consists of attributes similar to those in nesting and roosting (57 *Federal Register* 1796). Dispersal habitat, at minimum, consists of stands with adequate tree size and canopy closure to provide protection from avian predators and at least minimal foraging opportunities: there may be variations over the owl's range (e.g., drier sites in the east Cascades or northern California) (57 *Federal Register* 1796).

2.3 Conservation Role

Northern spotted owl critical habitat was designated based on the identification of large blocks of suitable habitat that are well distributed across the range of the spotted owl. Critical habitat units were intended to identify a network of habitats that provided the functions considered important to maintaining a stable, self-sustaining, and interconnected populations over the range of the northern spotted owl, with each CHU having a local, provincial, and a range-wide role in northern spotted owl conservation. Most CHUs were expected to provide suitable habitat for population support, some were designated primarily for connectivity, and others were designated to provide for both population support and connectivity.

The NWFP was developed using conservation principles similar to those used to designate critical habitat and is considered the Federal contribution to the conservation of northern spotted owls and its habitat in the United States. Specifically, LSRs were created under the NWFP to provide large blocks of suitable habitat capable of supporting multiple pairs of northern spotted owls. Standards and Guidelines of the NWFP establish that LSRs will be managed to protect and enhance late-successional and old-growth forests ecosystems. Riparian Reserves and other NWFP land use allocations provide for connectivity between reserves. Approximately 70 percent of suitable habitat in CHUs overlaps with NWFP LSRs on a range-wide basis and will therefore be managed to protect and enhance suitable habitat characteristics.

2.4 Current Condition of Northern Spotted Owl Critical Habitat

2.4.1 *Current Range-wide Condition*

In 1994, the FSEIS for the NWFP established that 3,141,987 acres of suitable habitat existed within spotted owl CHUs on Federal lands (USDA Forest Service and USDI Bureau of Land Management 1994). To assess changes to the baseline condition since implementation of the NWFP, the Service relied on information in section 7 consultations and available information on natural events. Hereafter, suitable habitat refers to habitat that provides for nesting, roosting, and

foraging, and critical habitat and effects to critical habitat refer to suitable habitat within spotted owl critical habitat.

Between 1994 and July 19, 2005, the Service has consulted on the removal or downgrading of 45,118 acres (1.43 percent) of critical habitat due to management-related activities (Appendix A). The majority of these consulted-on effects, over 34,000 acres, have been concentrated in the Oregon Cascades West and Oregon Klamath Mountains Provinces. Natural events, including fire and insect outbreaks, have resulted in the removal or downgrading of approximately 42,679 acres (1.39 percent) of critical habitat extant in 1994 (Table 1). In general, fires have had more of an impact to critical habitat in the interior provinces of Washington and California and the southern and interior provinces of Oregon than the coastal provinces. Over 50 percent of the critical habitat removed or downgraded from fire can be attributed to the 1999 Megram Fire that burned in north-central California and the 2002 Biscuit Fire that burned in southwest Oregon and northern California.

Although most provinces within the range of the spotted owl have experienced some degree of habitat loss since 1994, total effects have been disproportionately distributed. The majority of effects to critical habitat (approximately 98 percent) have been concentrated in just six physiographic provinces (Washington East Cascades, Washington West Cascades, Oregon Klamath Mountains, Oregon Cascades East, Oregon Cascades West, and California Klamath) (Table 1). Of the remaining six provinces, one (Oregon Willamette Valley) had no designated critical habitat, one (Washington Western Lowlands) had no suitable habitat within critical habitat, and four provinces (Olympic Peninsula, Oregon Coast Range, California Coast Range, California Cascades) had less than one percent of their critical habitat removed or downgraded since 1994.

2.4.2 Current Province-by-Province Condition

Washington East Cascades: This province, which contains 18 CHUs, is located east of the Cascade Crest and provides the easterly extension of the northern spotted owl in Washington. Approximately 8,492 acres of critical habitat, or 2.6 percent of its provincial baseline, have been removed or downgraded since 1994. The majority of effects have been concentrated in the northern half of the province and resulted primarily from the Tyee, Needles, North 25 Mile, and Maple Fires. The largest of these fires, the Tyee, removed or downgraded approximately 3,600 acres of suitable habitat from WA-06, WA-09, and WA-11. The Maple Fire removed or downgraded an additional 300 acres of suitable habitat from to WA-06. The Needles and North 25 Mile Fires removed or downgraded approximately 2,500 acres (23 percent) and 474 acres (28 percent) of suitable habitat from WA-02 and WA-04, respectively. Collectively, the units impacted by these fires are important for the range-wide distribution of the northern spotted owl as they occur on the eastern and northeastern edge of the species range (USDI Fish and Wildlife Service 1991). Additionally, these CHUs provide essential habitat for intra-provincial connectivity (USDI Fish and Wildlife Service 1991).

Washington West Cascades: This province, which contains 23 CHUs and the most critical habitat of the Washington provinces, is located west of the Cascade Crest. It is characterized by significant differences in topography and distribution of habitat between its northern and southern portions. Approximately 4,994 acres of critical habitat, or one percent of its provincial baseline, has been consulted on for removal or downgrading from 6 CHUs since 1994. Although impacts to 5 of these units have been relatively minor (less than 2.5 percent of their baseline) WA-39 has had 1,776 acres of suitable habitat (46 percent) consulted-on for removal or

downgrading. The WA-39 CHU is expected to provide connectivity between the Western Cascades and Western Lowlands Provinces and improve the distribution of owls and habitat in the portion of the province impacted by the 1980 Mount Saint Helens eruption (USDI Fish and Wildlife Service 1991). Fire has not resulted in measurable impacts to critical habitat in this province.

Oregon Klamath Mountains: The Oregon Klamath Mountains Province contains 16 CHUs and provides the link between the Oregon Cascades West and Oregon Coast Range Province south into California. Since 1994, this province has had more critical habitat removed or downgraded than any other province (i.e., 31,365 acres or 10.01 percent). In general, effects to critical habitat have been evenly distributed between those consulted upon (13,912 acres) and those attributable to fire (17,453 acres) effects. Although consulted-on effects were distributed across 11 CHUs, approximately 36 percent of consulted-on effects have occurred in two adjacent units (i.e., OR-74 and OR-75). Together, these units provide an east-west linkage in the southern portion of the Klamath Mountains Province and provide essential nesting, roosting, foraging, and dispersal habitat in a highly fragmented area (USDI Fish and Wildlife Service 1991). The majority of fire effects in this province can be attributed to the Biscuit Fire. This fire removed or downgraded approximately 23, 46, and 37 percent of the suitable habitat within OR-68, OR-69, and OR-70, respectively. These units were identified for their important contributions to inter- and intra-provincial connectivity and to provide essential nesting, roosting, foraging, and dispersal habitat in areas where habitat is lacking (USDI Fish and Wildlife Service 1991).

Oregon Cascades West: This province is located in the geographic center of the northern spotted owl range and contains more critical habitat (over 894,000 acres) than any other province. It provides links with the Washington Cascades, Oregon Coast Range, and Klamath Mountains Provinces. Since 1994, approximately 22,219 acres (2.48 percent) of its provincial baseline have been removed or downgraded. Consulted-on effects have been widely dispersed, occurring in 26 of the 29 CHUs in this province. In general, this has resulted in relatively small impacts to individual units. However, two adjacent units (i.e., OR-23 and OR-24) have experienced relatively concentrated effects, having 215 acres (14.3 percent) and 946 acres (48.8 percent) removed or downgraded, respectively. Together these units were identified as being important inter-provincial links between the Coast Ranges and the Oregon Cascades West Provinces (USDI Fish and Wildlife Service 1991). Fire has had limited effects to critical habitat in this province removing or downgrading only 1,216 acres or less than 0.5 percent of the provincial baseline.

Oregon Cascades East: The Oregon Cascades East Province provides the easterly extension of the northern spotted owl in Oregon and contains all or portions of 10 CHUs. Since 1994, 8,584 acres (6.18 percent) of its provincial baseline has been removed or downgraded. The majority of these acres (i.e., approximately 6,878 acres) are a result of several fires during 2002 and 2003. Impacts of these fires were concentrated in the central portion of this province where approximately 20 percent of the extant suitable habitat in OR-3 and OR-4 and over 36 percent of the suitable habitat in OR-7 were removed or downgraded. Critical habitat units OR-3 and OR-4 were designated to maintain suitable habitat and support dispersal along the eastern slope of the Oregon Cascades (USDI Fish and Wildlife Service 1991). Critical habitat unit OR-7 provides a north-south link within the province and an inter-provincial link with the Oregon Cascades West Province. Consulted-on effects have been evenly distributed, occurring in 8 of 10 CHUs and resulting in less than a five percent reduction (through removal or downgrading) of suitable habitat within any individual CHU.

California Klamath: The California Klamath Province contains all or portions of 36 CHUs and over 85 percent of the critical habitat in California. Approximately 10,483 acres of critical habitat (i.e., 3 percent of the provincial baseline) has been removed or downgraded from 14 CHUs within this province since 1994. The majority of these acres can be attributed to the Megram Fire. This fire removed or downgraded 9,390 acres (22 percent) of the suitable habitat within CA-30. This CHU is located in the west/central portion of this province and links the interior subprovinces with the coastal provinces and is expected to provide for up to 24 northern spotted owl pairs overtime (USDI Fish and Wildlife Service 1991). Two other small CHUs, CA-10 (9,637 acres) and CA-35 (12,470 acres), have had approximately 20 percent of their suitable habitat removed or downgraded from consulted-on actions. The primary function of these CHUs is to provide intra-provincial connectivity in the eastern and southcentral portion of this province, respectively (USDI Fish and Wildlife Service 1991).

2.5 Conservation Efforts on Non-Federal Lands

FEMAT noted that limited Federal ownership in some areas constrained the ability to form an extensive reserve network to meet conservation needs of the northern spotted owl. Thus, non-Federal lands were an important contribution to the range-wide goal of achieving conservation and recovery of the northern spotted owl. The Service's primary expectations for private lands are for their contributions to demographic support (pair or cluster protection) to and/or connectivity with NWFP lands. Additionally, timber harvest within each state is governed by rules that may provide protection of northern spotted owls and/or their habitat to varying degrees.

- *Washington:* In 1993, the State Forest Practices Board adopted rules (Forest Practices Board 1996) that would "contribute to conserving the northern spotted owl and its habitat on non-Federal lands" based on recommendations from a Science Advisory Group which identified important non-Federal lands and recommended roles for those lands in spotted owl conservation (Hanson et al. 1993, Buchanan et al. 1994). Spotted owl-related Habitat Conservation Plans (HCPs) in Washington generally provide both demographic and connectivity support as recommended in these reports and the draft recovery plan (USDI Fish and Wildlife Service 1992).
- *Oregon:* The Oregon Forest Practices Act provides for protection of 70-acre core areas around known northern spotted owl nest sites, but it does not provide for protection of northern spotted owl habitat beyond these areas (ODF 2000). In general, no large-scale northern spotted owl habitat protection strategy or mechanism currently exists for non-Federal lands in Oregon. The four northern spotted owl-related HCPs currently in effect address relatively few acres of land. However, they will provide some nesting habitat and connectivity over the next few decades.
- *California:* In 1990, State Forest Practice Rules (FPRs), which govern timber harvest on private lands, were amended to require surveys for northern spotted owls in suitable habitat and to provide protection around activity centers (CDF 2001). Under the FPRs, no timber harvest plan (THP) can be approved if it is likely to result in incidental take of Federally-listed species, unless authorized by a Federal HCP. The California Department of Fish and Game initially reviewed all THPs to ensure that take was not likely to occur; the Service took over that review function in 2000. Several large industrial owners operate under Spotted Owl Management Plans that have been reviewed by the Service; the plans specify

basic measures for northern spotted owl protection. Three HCPs, authorizing take of northern spotted owls, have been approved. Implementation of these plans will provide for northern spotted owl demographic and connectivity support to NWFP lands.

2.6 New Threats

Two new threats identified to the species (i.e., wildfire and sudden oak death) after the time of listing have the potential to affect habitat components of the PCEs that the northern spotted owl rely upon. Therefore, these threats are included as discussion below.

Wildfire

There was recognition that catastrophic wildfire posed a threat to the northern spotted owl at the time of listing (USDI Fish and Wildlife Service 1990). However, new information suggests fire may be more of a threat than previously thought. In particular, the rate of habitat loss in the relatively dry East Cascades and Klamath provinces has been greater than expected (see Section 3.2.1 Habitat Trends). Furthermore, we now recognize that our ability to protect spotted owl habitat and viable populations of spotted owls from these large fires through risk-reduction endeavors is largely uncertain (Courtney et al. 2004).

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In 1994, the Hatchery Complex wildfires burned 17,603 ha in the Wenatchee National Forest, eastern Cascades, Washington, affecting six northern spotted owl activity centers (Gaines et al. 1997). Spotted owl habitat within a 2.9 km radii of the activity centers was reduced by 8 to 45 percent (mean = 31%) due to direct effects of the fire and by 10 to 85 percent (mean = 55%) due to delayed mortality of fire-damaged trees and insect caused tree mortality. Spotted owl habitat loss was greater on mid to upper slopes (especially south-facing) than within riparian areas or on benches (Gaines et al. 1997). Direct mortality of spotted owls was assumed to have occurred at one site. Data were too sparse for reliable comparisons of site occupancy or reproductive output between sites affected by the fires and other sites on the Wenatchee National Forest.

Two wildfires burned in the Yakama Indian Reservation, eastern Cascades, Washington, in 1994, affecting home ranges of two radio-tagged spotted owls (King et al. 1997). Although the amount of home ranges burned was not quantified, spotted owls were observed using areas that received low and medium intensity burning. No direct mortality of spotted owls was observed even though thick smoke covered several spotted owl site centers for a week.

Sudden Oak Death

Sudden oak death was recently identified as a potential threat to the spotted owl (Courtney et al. 2004). This disease is caused by the fungus-like pathogen, *Phytophthora ramorum*, that was recently introduced from Europe and is rapidly spreading. At the present time, sudden oak death is found in natural stands from Monterey to Humboldt Counties, California, and has reached epidemic proportions in oak (*Quercus* spp.) and tanoak (*Lithocarpus densiflorus*) forests along approximately 300 km of the central and northern California coast (Rizzo et al. 2002). It has also been found near Brookings, Oregon, killing tanoak and causing dieback of closely associated wild rhododendron (*Rhododendron* spp.) and evergreen huckleberry (*Vaccinium ovatum*) (Goheen et al. 2002). It has been found in several different forest types and at elevations from sea level to over 800 m. It poses a threat of uncertain proportion because of its potential impact on forest dynamics and alteration of key habitat components (i.e., hardwood trees); especially in the southern portion of the spotted owl's range (Courtney et al. 2004).

2.7 Consulted-Upon Effects to Designated Critical Habitat

Prior to 2001, rangewide habitat information and classification were not consistently collected by Forest Service/BLM administrative units, nor did Service offices consistently track habitat effects. In response to litigation (i.e., *Gifford Pinchot Task Force vs. U.S. Fish and Wildlife Service*), the Service formalized a rangewide process in 2001 to define, classify, and quantify habitat and effects to northern spotted owl habitat. The disparate approaches to classifying and quantifying habitat information forced the Service to select common denominators to provide comparable and meaningful measures for creditable rangewide analyses. Because information on dispersal habitat, a primary constituent element of critical habitat, was not consistently collected rangewide, this analysis is conducted at the provincial or administrative unit scale.

Since 1994, approximately 1.5 percent (46,994 acres) of extant critical habitat was consulted upon for removal or downgrading³. Removal refers to habitat that provides for nesting, roosting, or foraging before an effect, but no longer provides any habitat function after an effect. Downgrading refers to habitat that was suitable before an effect but has reduced function after an effect, e.g., habitat suitable for nesting/roosting prior to an action, functions only as foraging or as dispersal habitat after an effect. Degrading refers to a decrease in habitat quality, but not function.

Effects to critical habitat have not been evenly distributed throughout the range of the northern spotted owl and the majority of effects (i.e., approximately 99 percent) occurred in NWFP allocations intended to provide only connectivity among reserves (Matrix and Adaptive Management Areas). Reserves (including LSRs), which were intended to provide large blocks of habitat to support clusters of breeding pairs, remain relatively unaltered by management activities.

The Klamath Province has experienced only a small amount of the consulted-upon effects to critical habitat range-wide (Appendix B). Critical habitat that has been consulted upon for downgrading or removal has occurred on 808 acres within the Klamath Province. Most (approximately 70 percent totaling 32,915 acres) of consulted-on effects to critical habitat range-wide occurred in the Oregon Klamath Mountains and Western Oregon Cascades Provinces. These provinces provide large blocks of suitable habitat to support population cluster and intra-provincial connectivity. The Oregon Klamath Mountains Province provides a link between the Oregon Coast Range and Western Oregon Cascades Provinces and south into the northern California provinces. The northern portion of the Western Oregon Cascades Province provides the link to the Washington Cascades across the Columbia Gorge area of concern while the southern portion of this province shares the three linkage areas within the Interstate 5 area of concern which connect this province with the Oregon Coast Range and Oregon Klamath Mountains Provinces (USDA Forest Service 2001).

Outside the Klamath Province, 45,897 acres of suitable habitat were consulted-on for removal or downgrading from designated critical habitat on a range-wide basis. Most (nearly 99 percent or 45,481 acres) of these effects occurred outside of reserves, generally on matrix lands. These effects were dispersed over 11 physiographic provinces and less than 2 percent of existing

³ The percent of consulted-upon critical habitat acres is based on a search of records in the NSO Consultation Effects Tracking Database on January 5, 2006.

suitable critical habitat was removed from any individual province, with the exception of the Oregon Klamath Mountains Province (4.1% removed/downgraded) and the Western Oregon Cascades (2.2% removed/downgraded).

The removal or downgrading of suitable critical habitat occurred to varying degrees across the northern spotted owls range. However, since 1994, only 1.5 percent (46,705 acres) of extant suitable critical habitat range-wide was removed or downgraded. Nearly 99 percent occurred in Matrix and CHUs in all provinces appear to be functional. Therefore, the Service concludes that consulted-on effects to critical habitat have not impaired its ability to provide for northern spotted owl conservation across the species range.

2.8 Summary of Effects to Range-wide Critical Habitat

This range-wide evaluation of critical habitat indicates that effects (consulted-on and fire effects) to date have impaired, to varying degrees, the ability of individual CHUs to fulfill their intended functions. However, these effects have not precluded the CHU network from providing for northern spotted owl conservation across the species range. This conclusion is based on the following: (1) only 1.5 percent of designated critical habitat has been affected by consulted-on actions range-wide; (2) although the majority of consulted-on effects occurred in the Oregon Klamath Mountains and Western Oregon Cascades Provinces, the Service believes the CHU network within these provinces continues to function; (3) the majority of consulted-on effects occurred in non-reserves, primarily in Matrix, consistent with the expectations of the NWFP; (4) although natural disturbances have resulted in the removal and degradation of large blocks of suitable habitat and reduced the resilience of the individual CHUs to future effects, they have not precluded the CHU network from functioning within any province or rangewide; and (5) the approximately 73 percent overlap between LSRs and CHUs augments the ability of CHUs to provide suitable habitat for population support through LSR standards and guidelines designed to protect and enhance late-successional and old-growth forests.

3 Environmental Baseline for the Pilgrim Timber Sale

The environmental baseline is an account of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat, and ecosystem within the action area (USDI Fish and Wildlife Service and USDC National Marine Fisheries Service 1998). The environmental baseline represents a “snapshot” in time of the current condition, and provides the context for the analysis of potential effects of the proposed action on the species. As stated in Section 1.2, the action area for the proposed action consists of approximately 7,700 acres.

3.1 Conservation Needs of Northern Spotted Owl Critical Habitat in the Action Area

The Pilgrim Timber Sale project area (3,780 acres) lies entirely within CHU CA-2, forming 4.2 percent of the 89,028 acres that constitute CHU CA-2. The proposed actions would remove approximately 673 acres of low-capability, relatively open dispersal habitat and 1,251 acres of capable/potential habitat due to plantation thinning, dead stand replacement, and restoration activities in CHU CA-2. The 673 acres of dispersal habitat was originally classified as 3N foraging habitat (659 acres) and 4G nesting-roosting habitat (14 acres; see section 3.2.1 below). However, the habitat is actually unsuitable for foraging, nesting, or roosting, due to the tree distribution and based on field reviews conducted by Forest biologists. The distribution of trees in the project area is very clumpy and non-uniform; these areas are often less than 1-acre patches

of dense trees surrounded by non-forest. Critical habitat unit CA-2 was designated to provide easterly distribution of the subspecies and to provide an opportunity to designate an area that may eventually support contiguous nesting habitat for up to 15 northern spotted owl pairs. Additionally, the Shasta-McCloud area has been repeatedly recognized as an area of concern due to checkerboard land ownership, an extensive logging history, and dry climate conditions that result in a dominance of ponderosa pine with relatively open canopies. The area supports low northern spotted owl densities, resulting in concern over restricted genetic interchange with the California spotted owl subspecies.

3.2 Current condition – Habitat and Population Trends in the Action Area

3.2.1 *Habitat Trends*

For the purposes of this BO, the following habitat definitions apply (see Appendix C): high quality nesting/roosting (N/R) habitat includes those stands that are classified as 4G and 4N; moderate quality N/R refers to 3G stands; foraging (F) habitat refers to 3N stands; and dispersal-only habitat includes 4P/S stands.

As stated in section 3.1 above, the 89,028-acre CHU CA-2 protects an area that supports genetic interchange between the northern spotted owl and California spotted owl subspecies. The majority of this CHU is managed by STNF. The action area is highly fragmented, and characterized by natural openings and open forest, as well as old harvested areas. Stands of ponderosa pine and fir may achieve canopy cover greater than 40 percent, but are subject to damage and mortality due to root disease, blackstain fungus, and bark beetles, increasing the habitat fragmentation within the area. The limited water, slope, and aspect characteristic of the McCloud Flats are less preferred by prey species of the northern spotted owl (USDA Forest Service 2005). As a result, the Forest Service anticipates that these factors are preventing the use of the McCloud Flats area by northern spotted owls for nesting, roosting, or foraging, and limiting its use for dispersing. Only 17 percent of the Ash Creek and Upper McCloud watersheds contains dispersal habitat, and only 26 percent of the watersheds is capable of producing dispersal habitat (USDA Forest Service 2005). However, the small groups of trees present appear to provide areas of protection for owls dispersing through the McCloud Flats.

Private lands within the Ash and Upper McCloud 5th field watersheds where the Pilgrim Timber Sale Project is proposed are intensely managed for timber, with the larger trees continuously removed (USDA Forest Service 2005). These areas are currently unsuitable for N/R or F habitat, although some areas remain suitable as low-capability dispersal habitat.

3.2.2 *Spotted Owl Numbers, Distribution, and Reproduction Trends*

Multiple observations or sightings of northern spotted owls have occurred in the action area according to historical records. Activity centers that fall within the analysis area include #215, #223, and the very extreme western edge of the home range of #203. These activity centers also harbor habitat characteristics similar to those described in section 3.2.1 above. Only one activity center (i.e., #222 which is located on the eastern edge of the action area) has had reproductive activity in the last 5 years according to recent survey efforts. Surveys found activity center #215 was occupied by a single female in 2003, indicating suitable habitat conditions (at least for dispersal opportunities at minimum) are present. No observations have been documented in the action area since this single female occurrence.

3.3 Factors affecting the Species Environment/Critical Habitat in the Action Area

This section of the biological opinion describes the factors affecting the environment of the species and/or critical habitat in the action area. These include all Federal, state, tribal, local, and private actions already affecting the species and/or critical habitat or that will occur contemporaneously with the proposed action.

3.3.2 Consulted-Upon Effects

Implementation of Forest Service projects in CHU CA-2 have focused primarily on removal of dead or dying trees infected by insects and disease or hazard tree removal activities. The following table lists all consulted-upon activities over the past 5 years within CHU CA-2.

Table 1. Consulted-Upon Activities in Critical Habitat Unit CA-2, Shasta-McCloud Management Unit, Shasta-Trinity National Forest.

Year	Consultation #	Project Name	Activity/Effects
2005	1-12-2005-I-3	Elk Flats Salvage Project	Salvage 100 acres of dead or dying trees.
	1-12-2005-I-2	Cattle Camp Vegetation Management Project	Thin 48 acres of fragmented forested area.
2004	1-12-2004-I-18	Kinyon Vegetation Management Project	Remove 150 acres of dead or dying trees.
	1-12-2004-I-13	Edson Management Project	Thin and remove in plantations and fragmented dispersal habitat areas.
2003	NONE		
2002	1-12-2002-I-22	Mountain Thin and Fuels Project	Thin 24 acres of fragmented forested area.
	1-12-2002-I-16	Sugar Roadside Hazard Tree Project	Remove 102 acres of hazard trees.
	1-12-2002-I-9	Intake Springs Water System and Tank Improvement Project	Remove 17 hazard trees.
	1-12-2002-I-8	Davis Vegetation and Road Management Project	Degrade 111 acres of foraging habitat.
2001	1-12-2001-I-16	Pilgrim Creek Snowmobile Park	On-going maintenance of grooming and hazard tree removal (pre-existing conditions included loss of 254 acres N/R and 1,874 acres of F habitat prior to critical habitat designation)

3.3.3 Natural Disturbances

An analysis of fire history in the area reveals that only one intensive fire occurred in the general area in 1928. However, only the northeast corner of CA-2 may have been affected by this fire (F. Mangels, STNF Wildlife Biologist, pers. comm. 2005).

3.3.4 Summary

The Service concludes that consulted-upon effects and natural disturbances have had a minor impact to CHU CA-2 since its designation in 1992. Additionally, the greater extent of vegetation management projects that have occurred over the past 5 years have benefited CHU CA-2 through removal of trees infected by disease and beetle infestation. These areas harbored predominantly dead or dying trees which were infecting live, healthy trees and causing continual degradation of the remaining higher quality habitat. As a result, we believe the Forest's actions have benefited CHU CA-2 in helping maintain and improve habitat conditions for the northern spotted owl. Therefore, we believe that this CHU continues to function in the manner for which it was designated.

4 Effects of the Pilgrim Timber Sale

This section presents an analysis of the direct and indirect effects of the proposed action, including interrelated and interdependent actions, on northern spotted owl critical habitat. Implementation of the project as proposed will involve GTR treatments, commercial thinning, aspen release, dry meadow restoration activities, and road management. The degree to which these activities affect northern spotted owl critical habitat is presented with respect to destruction or adverse modification of critical habitat. Additionally, these effects are then discussed with respect to the conservation needs of the northern spotted owl within the action area and within the larger conservation strategy established for the owl by the NFWP: 1) protection of large blocks of habitat to provide for clusters of breeding pairs of northern spotted owls; 2) distribution of protected areas across a variety of ecological conditions; and 3) provision of suitable connectivity habitat within the intervening matrix to support survival and movement across the landscape between reserves.

The proposed project activities have the potential to result in adverse effects to critical habitat of the northern spotted owl. Critical habitat units contain the following types of habitat: (1) suitable habitat, which supports the physical and biological features necessary for northern spotted owl nesting, roosting, and foraging; (2) dispersal habitat, which supports the physical and biological features necessary for northern spotted owl dispersal; (3) capable habitat, which is currently not suitable but could develop into suitable or dispersal habitat; and (4) non-owl habitat, where the physical properties of a site make it incapable of ever becoming owl habitat. Suitable and dispersal habitat can be removed, downgraded, or degraded as described in section 4.1.1.2. Capable habitat can be retarded or precluded from developing the primary constituent elements of critical habitat.

4.1 Habitat Modification

Forest management activities can modify suitable northern spotted owl habitat to varying degrees, leading to direct and indirect effects on spotted owls or their habitat at both site-specific and more landscape-level scales as discussed below.

4.1.1 *Scientific Basis for Effects*

4.1.1.1 Site-Specific Effects. Forest management activities, whether intended to address silvicultural needs or to facilitate other actions (e.g., mining, recreation) have the potential to reduce availability of northern spotted owl nest and roost sites. Northern spotted owls do not construct their own nests, but depend upon existing structures such as cavities and broken tree tops, characteristics associated with stands in later seral stages of development. Silvicultural prescriptions (e.g., GTR prescriptions) or management activities that specifically target the oldest, most decadent trees in the stand for economic purposes, or require removal of hazard trees and snags to address human safety concerns, are likely to result in loss of nesting opportunities for spotted owls by removing the trees that contain those structures (Blakesley et al. 1992). Further, treatments designed to reduce or remove ladder fuels or release co-dominant individuals can simplify vertical structure in the forest understory, where spotted owls perch for hunting or roosting (Forsman et al. 1984).

Activities such as intermediate timber harvest, fuels reduction, thinning, or hazardous tree removal can contribute to changes in structure, diversity, and habitat microclimate by reducing overall canopy closure within a stand. Northern spotted owls prefer to nest and roost in older forests (55 *Federal Register* 26114, Blakesley et al. 1992) presumably because they provide protection under most weather conditions (Forsman et al. 1984, North et al. 2000). During periods of rain, snow, or cold, Forsman et al. (1984) found northern spotted owls roosting significantly higher in the forest overstory than during hot weather, when northern spotted owls were commonly found roosting low in the forest understory. Weathers et al. (2001) documents physiological limitations that corroborate results of laboratory work and field studies which determined low heat tolerance of spotted owls compared to typical birds.

Various forestry activities that remove large trees, snags, and downed wood can affect prey composition and/or availability by altering characteristics of the habitat upon which prey species depend. Because the number of snags and amount of down material present on the forest floor are positively correlated with densities of some northern spotted owl prey species, removing these materials or temporarily disturbing material on the forest floor may contribute to declines in northern spotted owl prey, at least on a localized, short-term basis (Williams et al. 1992, Bevis et al. 1997). It may also be possible for prey species to be adversely affected by incidental loss of hardwoods, hazard trees, or snags during harvest. Because availability of large prey species, particularly dusky-footed woodrat and northern flying squirrels, has been shown to be important for northern spotted owl reproductive success (Barrows 1985, Zabel et al. 1995), activities that reduce prey populations could lower spotted owl recruitment and individual fitness.

4.1.1.2 Landscape-Scale Effects. Any individual or suite of site-specific effects discussed above could change the habitat function that a forested stand provides for owls. For the purpose of the following discussion, the degree of change to habitat function has been categorized using the following terms: removal, downgrade, and degrade. The term *removal* represents a complete loss of habitat function following an effect (i.e., an area that functioned as N/R, F, or dispersal habitat for northern spotted owls before the effect, no longer provides any habitat function for spotted owls after the effect). *Downgrade* refers to a reduction in the function of habitat (e.g., an area that functioned as nesting/roosting habitat before an effect, provides only dispersal habitat following the effect). *Degrade*, to be distinguished from *downgrade*, indicates a reduction in habitat quality, but not habitat function following the effect (e.g., an area that functioned as foraging habitat prior to the effect, still provides such function after the effect, but perhaps is more limited due to a temporary reduction in prey base).

Landscape-level changes in habitat availability, distribution, and configuration have implications to individual northern spotted owl survival and productivity, as well as to northern spotted owl population dynamics. For example, removal or downgrading of habitat within home ranges, and especially close to the nest site, can be expected to have negative effects on northern spotted owls. Bart (1995) reported a linear reduction in northern spotted owl productivity and survivorship as the amount of suitable habitat within a spotted owl home range declined. In northwestern California, Franklin et al. (2000) found that survivorship of adult owls was greater where greater amounts of older forest were present around the activity center, but also found increased reproductive success where the amount of edge between older and younger forest was

relatively high. Based on analysis of radio-telemetry data, Bingham and Noon (1997) reported that a sample of spotted owls in northern California focused their activities in heavily-used “core areas” that ranged in size from about 167 to 454 acres, with a mean of about 409 acres. These core areas, which included 60 to 70 percent of the owl telemetry locations during the breeding season, typically comprised only 20 percent of the area of the wider home range. These studies suggest that habitat removal within core areas could have disproportionately important effects on northern spotted owls. Other research has demonstrated that spotted owl abundance and productivity significantly decrease when the proportion of suitable habitat within 0.7 miles of an activity center falls below 500 acres (50 percent of the total 1,000 acres within 0.7 miles) (O’Halloran 1989, Simon-Jackson 1989, Thomas et al. 1990).

Timber harvest that produces relatively open stands (less than 40 percent canopy closure) or patch clear-cuts can fragment forest stands, creating more forest edge, and reducing the area of interior old forest habitat (Lehmkuhl and Ruggiero 1991). Habitat fragmentation has the potential to isolate individual northern spotted owls or populations of owls by increasing distances between suitable habitat patches and reducing habitat connectivity. Such isolation decreases the likelihood of successful dispersal of juvenile owls (Miller 1989), which in turn could reduce opportunities for genetic exchange between owl populations (Barrowclough and Coats 1985).

Currently there is little empirical data confirming that habitat fragmentation contributes to increased levels of predation on northern spotted owls. However, great horned owls (*Bubo virginianus*), an effective predator on spotted owls, are known to be closely associated with fragmented forest habitats (Johnson 1992). As mature forests are harvested, it is possible that great horned owls could colonize the fragmented forest and possibly increase northern spotted owl vulnerability to predation events.

4.1.2 Habitat Modification Related Effects of the Pilgrim Timber Sale

Proposed actions for the Pilgrim Timber Sale would remove approximately 673 acres of low-capability, relatively open dispersal habitat and affect 1,251 acres of capable/potential habitat due to plantation thinning, dead stand replacement, and restoration activities in CHU CA-2. The removal of the 673 acres of dispersal habitat accounts for approximately 1.5 percent of the suitable dispersal habitat within the Ash and Upper McCloud watersheds.

Overall, short-term effects to northern spotted owl critical habitat would occur through a reduction of overall canopy closure, removal of dispersal habitat, simplification in vertical structure from thinning prescriptions and prescribed burning, a reduction in snags and logs, and an increase in fragmentation of existing suitable dispersal habitat by creating areas that would be below connectivity habitat conditions. However, the removal of the majority of the trees in the project area is beneficial to the CHU due to currently severe forest pathogenic conditions. Additionally, the Forest anticipates they would not be able to maintain 15 percent retention in some areas (i.e., ponderosa pine and knobcone pine harvest and replant prescriptions, see sections 1.1.1 and 1.1.2) due to the extremely limited number of live, older ponderosa pine trees remaining.

A significant amount of suitable dispersal habitat would remain intact within the watershed and critical habitat boundary. The effects of the proposed project do constitute an adverse effect to the critical habitat because the function of the primary constituent elements (i.e., dispersal habitat) has been adversely affected. The Forest Service anticipates that canopy closure in thinned areas would recover to pre-harvest levels in approximately 25 years and that dispersal/connectivity habitat conditions would remain adequate through CHU CA-2 and the surrounding vicinity. However, due to the limited amount of dispersal habitat to be affected in the action area (i.e., 673 acres), the Service does not expect that this adverse effect will impede the ability of the action area to provide for the intended conservation needs of the northern spotted owl.

5 Cumulative Effects of the Pilgrim Timber Sale

Cumulative effects are those impacts of future State and private actions that are reasonably certain to occur within the area of the action subject to consultation. Future Federal actions will be subject to the consultation requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed action.

Private lands harbouring conifer stands within the Ash and Upper McCloud Creek watersheds are intensely managed for timber. However, no immediate private logging has been proposed within 1.3 miles of the assessment area, partly due to the recent removal of trees in this area. These lands remain unsuitable for northern spotted owl nesting, roosting, and foraging, although some lands remain suitable as low-capability dispersal habitat. There are currently no future Federal state actions planned within the action area. However, any future actions would be evaluated at a later date should they be proposed. Consequently, cumulative effects of the Proposed Action on northern spotted owl critical habitat are anticipated to be discountable.

6 Conclusion

The Service has reviewed the current, rangewide status of designated critical habitat for the northern spotted owl, the environmental baseline, the effects of the Pilgrim Timber Sale, and the cumulative effects. Based on this review, it is the Service's biological opinion that these actions are not likely to "destroy or adversely modify" designated critical habitat for the northern spotted owl. The Service has reached this conclusion based on following factors:

1. The change in the rangewide status of critical habitat due to consulted-upon effects is minor. Only approximately 1.5 percent of the amount of existing critical habitat has been consulted-on for removal or downgrading, and this habitat has been well distributed across the range of the northern spotted owl.
2. Natural events (e.g., wildland fire, insect, and disease disturbances) have impacted individual CHUs, but rangewide, the critical habitat network continues to function as designated within and among provinces.
3. Consulted-upon effects in the Klamath Physiographic Province have been minor. Overall, CHUs in this province continue to function as designated.

4. The effects of tree removal and/or degradation for the proposed action are limited to the removal of 673 acres of dispersal/connectivity habitat. No northern spotted owl nesting/roosting or foraging habitat would be affected. Although adverse, these effects to dispersal/connectivity habitat will not prevent CHU CA-2 to continue to function in maintaining these habitat conditions for the area.

The critical habitat network appears to function as designated at all scales of analysis. CHU CA-2 is anticipated to continue to function in the manner for which it was designated. Therefore, when considering the status of the rangewide and provincial CHU networks, the effects of the action, and the cumulative effects, the Pilgrim Timber Sale Project will not result in “destruction or adverse modification” of designated critical habitat for the northern spotted owl.

INCIDENTAL TAKE STATEMENT

1 Introduction

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the taking of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined (50 CFR 17.3) by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by the Service (50 CFR 17.3) as actions that create the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

2 Amount or Extent of Take

The Service does not issue incidental take for adverse effects to designated critical habitat. The implementing regulations regarding incidental take (50 CFR. 402.14) apply to individuals of a listed species, not designated critical habitat. Therefore, the Pilgrim Timber Sale will not result in any incidental take.

3 Effect of the Take

The Service does not issue incidental take for adverse effects to designated critical habitat.

4 Reasonable and Prudent Measures

Pursuant to 50 CFR 402.14 (I) (ii), reasonable and prudent measures are those the Service considers necessary to minimize the impact of the incidental taking. Since no incidental take is authorized, no reasonable and prudent measures are necessary.

5 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of ESA, the Forest Service must comply with terms and conditions which implement any reasonable and prudent measures. However, no terms and conditions are necessary because no incidental take is authorized.

6 Monitoring Requirements

In order to monitor the impacts of incidental take, the Federal agency or any applicant **MUST** report the progress of the action and its impacts on the species to the Service as specified in the incidental take statement. However, reporting requirements are not necessary because no incidental take is authorized.

CONSERVATION RECOMMENDATIONS

Sections 2(c) and 7(a)(1) of the Act direct Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species and the ecosystems upon which they depend. Regulations in 50 CFR S.402.02 define conservation recommendations as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, or regarding development of information.

The Service offers to the STNF the following conservation recommendations:

- 1) Design future forest management activities to reduce incidental take of spotted owls and impacts to other listed species and their habitat through continued interagency cooperation and planning with the Service.
- 2) Monitor the habitat utilization and occupancy rates of barred owls in the area to aid in assessing the threat of competition on northern spotted owl survival and recovery.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects, or benefiting listed species or their habitats, the Service requests notification of the implementation of these conservation recommendations.

RE-INITIATION - CLOSING STATEMENT

This concludes formal consultation on this action. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required when discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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APPENDIX A. Change in Northern Spotted Owl Critical Habitat⁴ from 1994 to December 10, 2004, Resulting from Federal Management Actions and Natural Events by Physiographic Province.

Physiographic Province	1994 FSEIS Provincial Critical Habitat Baseline	Critical Habitat (acres) Removed/Downgraded, 1994-2004				% 1994 FSEIS Provincial Critical Habitat Baseline	% of all Rangewide Habitat Effects
		Management	Fire	Insect/Disease	Total		
WA							
Olympic Peninsula	197,009	71	0	0	71	0.04	0.08
East Cascades	326,592	1,035	6,925 ^{5,6}	532	8,492	2.60	9.67
West Cascades	514,578	4,994	0	0	4,994	0.97	5.69
Western Lowlands	0	0	0	0	0	0.00	0.00
OR							
Coast Range	348,717	1,224	0	0	1,224	0.35	1.39
Klamath Mountains	313,269	13,912	17,453	0	31,365	10.01	35.72
Cascades East	138,684	1,706	6,878 ³	0	8,584	6.18	9.78
Cascades West	894,134	21,003	1,216	0	22,219	2.48	25.31
Willamette Valley	0	0	0	0	0	0.00	0.00
CA							
Coast Range	2,616	0	0	0	0	0.00	0.00
Cascades	50,687	365	0	0	365	0.72	0.41
Klamath	355,701	808	9,675	0	10,483	2.95	11.95
Total	3,141,987	45,118	42,147	532	87,797	2.79	100.00

⁴ Critical habitat in this table refers to suitable habitat within spotted owl critical habitat.

⁵ Habitat effects from some 1994 fires were included in the 2001 update, and thus, appear as consulted-on effects in the NSO Consultation Effects Tracking Database. For the purpose of this critical habitat update, habitat effects associated with those fires are included in the fire effects column.

⁶ Includes fires in 2003.

APPENDIX B. Aggregate Results of All Adjusted, Critical Habitat (NRF⁷) Acres Affected by Section 7 Consultation for the Northern Spotted Owl; Baseline Summary of Effects By State, Physiographic Province and Land Use Function from 1994 to January 5, 2006.

	Physiographic Province ⁸	Evaluation Baseline ⁹			Habitat Removed/Downgraded ¹⁰			% Provincial Baseline Affected	% Range-wide Affected
		Reserves ¹¹	Non-Reserves ¹²	Total	Reserves ¹³	Non-Reserves ¹⁴	Total		
WA	Olympic Province	193081	3928	197009	-12	-59	-71	-0.04	0.15
	Eastern Cascades	225855	100737	326592	-87	-4549	-4636	-1.42	9.93
	Western Cascades	424273	90305	514578	-3	-5040	-5043	-0.98	10.80
	Western Lowlands	0	0	0	0	0	0	0.00	0.00
OR	Coast Range	332562	16155	348717	-50	-1200	-1250	-0.36	2.68
	Klamath Mountains	228112	85157	313269	-4	-12830	-12834	-4.10	27.48
	Cascades East	86882	51802	138684	-138	-1372	-1510	-1.09	3.23
	Cascades West	532571	361563	894134	-122	-19959	-20081	-2.25	43.00
	Willamette Valley	0	0	0	0	0	0	0.00	0.00
CA	Coast	2589	27	2616	0	0	0	0.00	0.00
	Cascades	47947	2740	50687	0	-472	-472	-0.93	1.01
	Klamath	322372	33329	355701	0	-808	-808	-0.23	1.73
Total		2396244	745743	3141987	-416	-46333	-46705	-1.49	100.00

⁷ Nesting, roosting, foraging (NRF) habitat. In California, suitable habitat is divided into two components; nesting – roosting (NR) habitat, and foraging (F) habitat. The NR component most closely resembles NRF habitat in Oregon and Washington. Due to differences in reporting methods, effects to suitable habitat compiled in this, and all subsequent tables include effects for nesting, roosting, and foraging (NRF) for 1994 – 6/26/2001. After 6/26/2001 suitable habitat includes NRF for Washington and Oregon but only nesting and roosting (NR) for California.

⁸ Defined by the Northwest Forest Plan as the twelve physiographic provinces, as presented in Figure 3&4-1 on page 3&4-16 of the FSEIS.

⁹ 1994 FSEIS baseline (USDA and USDI 1994).

¹⁰ Includes both effects reported in USFWS 2001 and subsequent effects reported in the Northern Spotted Owl Consultation Effects Tracking System (web application and database).

¹¹ Land-use allocations intended to provide large blocks of habitat to support clusters of breeding pairs.

¹² Land-use allocations intended to provide habitat to support movement of spotted owls among reserves.

APPENDIX C. Shasta-Trinity Timber and Successional Strata Definitions¹³.

Table 1. Timber strata definitions used in reference to northern spotted owl habitat determinations. DBH refers to 'diameter at breast height'.

Size Class Definitions		Density class Definitions	
1	1 to 5.9 inches dbh.	S	10 to 19% canopy closure
2	6 to 12.9 inches dbh	P	20 to 39% canopy closure
3	13 to 24.9 inches dbh	N	40 to 69% canopy closure
4	25 to 40.0 inches dbh	G	> or equal to 70% canopy closure
5	> 40 inches dbh	6	two-storied stands

Table 2. Successional stage stratification based upon forest timber type.

Type	Description
Late-successional/Dense	4N, 4G, 5N, 5G: primarily commercial conifer forest. Includes 4P and 5P stands if they contain conifers as a primary component and conifers or black oak as a secondary component.
Late-successional/open	4S, 4P (except as noted above), 5S, 5P (except as noted above): primarily commercial conifer forest.
Mid-successional/dense	3N, 3G, 6 stands: primarily commercial conifer forest. Includes 3P stands if they contain conifers as a primary component and conifers or black oak as a secondary component.
Mid-successional/open	3S, 3P (excepted as noted above): primarily commercial conifer forest.
Early-successional/poles and saplings	2N, 2G and plantations older than 20 yrs: primarily commercial conifer forest. Includes 2S and 2P stands if they contain conifers as a primary and secondary component.
Early-successional/seedlings	1N, 1G and plantations younger than 20 yrs: primarily commercial conifer forest. Includes 1S and 1P stands if they contain conifers as a primary and secondary component.
Other	Includes hardwood stands, non-commercial conifer stands, early-successional S and P stands with conifers as a primary component and hardwoods as a secondary component with shrubs and grasses.

¹³ Source: Forest-wide LSR Assessment, Shasta-Trinity National Forest, 1999.